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Remarks

By this response, claims 1, 3, 12, 45, and 47 have been amended. Claims 15-44 were previously canceled. Therefore, claims 1-14, and 45-57 are pending in this application. No new matter has been entered.

The Examiner has rejected claim 45 under 35 USC 102(c) as being anticipated by Kusunoki et al (US 6,335,549)(a newly cited reference). Claims 1, 3, and 5-7 are rejected under 35 USC 102(b) as being anticipated by, or in the alternative, under 35 USC 103(a) as being obvious over Kusunoki et al. Claims 2, 4, 8-9, 46-53 and 55-56 are rejected under 35 USC 103(a) as being unpatentable over Kusunoki et al in view of Akram. Claims 10 and 54 are rejected as being unpatentable over Kusunoki et al in view of Admitted Prior Art (APA). Claims 11 and 12 are rejected as being unpatentable over Kusunoki et al in view of Motoyoshi et al (JP 6-53492). Claim 13 is rejected as being unpatentable over Kusunoki et al and Motoyoshi et al, as applied to claim 12, and further in view of Akram. In view of the above rejections, independent claims 1, 3, 12, 45, and 47 have been amended to recite limitations neither disclosed nor suggested by the cited art.

In particular, the Applicants note that the cited art, individually or in combination, fails to teach or suggest "a first overlap region of the oxide layer located only beneath said gate structure and adjacent said first leading edge and inward of said second leading edge, and a second overlap region comprising all remaining portions of the oxide layer located beneath said gate structure, said second overlap region having first and second sides, said first side being adjacent said first overlap region and said second side being adjacent said second leading edge, said first overlap region having a predetermined ion implant concentration higher than in said second overlap region and all remaining oxide layer portions extending outwardly from both said first and second leading edges of said gate structure, said predetermined implant concentration being sufficient to increase the electrical gate oxide thickness in said overlap region," such as recited by amended claim 1.

The cited art, individually or in combination, fails to teach or suggest "a gate electrode located on said gate oxide layer above said channel region, wherein portions of said gate oxide layer located only under said gate electrode include a first overlap region and a second overlap region, said first overlap region is inward of said source region and adjacent said drain region.

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said second overlap region includes all remaining portions of said gate oxide layer under said gate electrode and has first and second sides, said first side is adjacent said source region and said second side is adjacent said first overlap region, said first overlap region having an ion implant concentration higher than in said second overlap region and all remaining portions of said oxide layer extending outwardly from both sides of the gate electrode, which is effective to lower the surface electrical field in said overlap region," as recited by amended claims 3 and 12.

The cited art, individually or in combination, fails to teach or suggest "a gate electrode located on a portion of said gate oxide layer above said channel region, wherein the portion of said gate oxide layer located only beneath said gate electrode has first and second portions, said first portion is adjacent said drain region, said second portion comprises all remaining portions of said gate oxide layer located under said gate electrode and has first and second sides, said first side is adjacent said first portion and said second side is adjacent said source region, and said first portion has a higher ion implant concentration than in said second portion and all remaining portions of said gate oxide layer extending outwardly from both sides of said gate electrode," as recited by amended claim 45.

The cited art, individually or in combination, fails to teach or suggest "a gate electrode located on said gate oxide layer above said channel region, wherein portions of said gate oxide layer located only beneath said gate electrode include a first portion and a second portion, said first portion is adjacent a first one of said pair of field isolation regions, said second portion comprises all remaining portions of said gate oxide layer under said gate electrode and has first and second sides, said first side is adjacent said first portion and said second side is adjacent a second one of said pair of field isolation regions, and said first portion has a higher ion implant concentration than in said second portion and all remaining portions of said gate oxide layer between said pair of field isolation regions," as recited by amended claim 47.

The Applicants respectfully submit that, in view of the above amendments and remarks, all the claims are patentable over the cited art, and the application is now in condition for allowance. The Examiner is encouraged to contact the undersigned to resolve efficiently any formal matters or to discuss any aspects of the application or of this response. Otherwise, early notification of allowable subject matter is respectfully solicited.

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Respectfully submitted,

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